



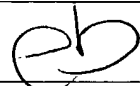
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,510	12/18/2001	Xuekun Xing	PD7259US	4609
22203	7590	03/26/2004	EXAMINER	
KUSNER & JAFFE HIGHLAND PLACE SUITE 310 6151 WILSON MILLS ROAD HIGHLAND HEIGHTS, OH 44143			MERCADO, JULIAN A	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/023,510	Applicant(s) XING ET AL.	
	Examiner Julian Mercado	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| <p>1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br/>Paper No(s)/Mail Date <u>3/14/02</u></p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)<br/>Paper No(s)/Mail Date. ____</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: ____</p> |
|---|--|

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites the limitation "each of said protective layers" in line 2. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by JP 9-293499.

See Abstract and Figure 1, emphasis on reference character [1] showing reinforcing bands wrapped around the peripheral edges of battery cells.

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 12 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 9-293499.

JP 9-293499 shows bands [1] around the battery in the sectional view of the Figure. As to the claimed four bands, a broad interpretation of this limitation results in the bands [1] in JP '499 as comprising four bands insofar as having four angular "leg" portions each of which is wrapped around a corresponding corner of the battery as it joins with a mutually shared vertical portion. That is, the corners of the bands [1] which total four are considered to read on the claimed four bands wrapped around the corners of the battery.

Additionally, it would have been obvious to one of ordinary skill in the art to employ four bands, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. The skilled artisan would find obvious to employ four bands around the battery in JP '499 since a flat battery would naturally flow to have four corners, thus, a corresponding number of bands, i.e. four bands around the battery would allow for equal pressure applied by the clips.

Claims 1-3, 9-11 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tura (U.S. Pat. 5,487,958) in view of Barker et al. (U.S. Pat. 6,063,519)

Regarding independent claim 1, Tura teaches a Li-ion polymer battery comprising a plurality of battery cells [62], a cathode [100] and anode [88] section with a separator [94] therebetween. The alleged inventive concept of a plurality of reinforcement bands is found in two co-existing features in Tura. In one interpretation, a plurality of reinforcing bands [38, 40, 42] wrap around the edges of the battery cells and secure them together as discussed in col. 3 line 33-37:

An upper portion 40a of frame 40 interlocks with a lower portion 42c of frame 42. Upper portion 40a is located between the battery section 60 and the lower portion 42c of frame 42. In this manner, the horizontal movement of battery section 60 is restricted.

The cell is rectangular in shape with tabs extending through apertures [18, 20]. (col. 2 line 44-52)

In a second interpretation, sealing material [70, 72] are also disclosed as wrapped around the peripheral edge of the battery cells, therefore reading on the claimed plurality of bands that secure the battery cells together, “the vacuum sealing holds the battery 30 together”. (col. 4 line 58-59) The sealing material also incorporates an adhesive layer. (col. 4 line 54-56, applies to dependent claim 2) The examiner notes that the scope of the present claims does not specifically recite that the adhesive material is between the bands and the peripheral edges of the battery cells. Dependent claim 2 further calls for the bands to be comprised of an outer polymer layer and an inner adhesive layer. A fair reading of applicant’s specification appears to disclose the bands, which are polymeric, as “outer” bands, i.e. disposed around the outer peripheral edges of the battery. At present, however, the claim merely recites an outer polymer layer. Thus, in Tura and within the second interpretation of the patentees disclosure as it pertains to applicant’s claimed reinforcement bands, the bands are specifically disclosed as plastic, the plastic polymeric material thereby also formed along its outer surfaces. (col. 2 line 58-60) Figure 5

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shows that the sealing material is wrapped entirely around the end of the battery with no tabs, albeit also around the end of the battery with tabs. (see also Figure 2, which shows tabs formed in one end only, applies to dependent claim 10, 15, 16) The examiner asserts that the scope of dependent claims 10, 11 and 13 do not preclude the band being wrapped around other end sections of the battery. As to dependent claims 11, 13, 15 and 16, since the sealing material completely surrounds the battery it is thus considered to be wrapped around the entire end of the battery, widthwise around the battery, and along the lateral and longitudinal edges thereof.

Tura does not explicitly teach a metal mesh layer within the anode and cathode sections as recited in independent claim 1. However, Barker et al. teaches metal mesh layers for both the anode and cathode sections. (col. 6 line 60-67, col. 7 line 37-46) Barker also teaches a second cathode, anode and separator as called for by dependent claim 14. Note also that current collector tabs are disclosed as coplanar extensions of the current collector metal mesh layers. (col. 6 line 67 et seq., col. 7 line 46-48) Such tabs are consistent with Tura's disclosure of positive [26] and negative [24] leads in Figure 2. At the time the invention was made, the skilled artisan would find obvious to employ a metal mesh layer within the anode and cathode sections of Tura. The motivation for such a modification is to allow for enhanced bonding between the electrode material and the metal mesh layer functioning as part of a current collector.

Regarding dependent claims 3 and 9, as to the thickness of the polymer layer (understood to be the claimed protective layer in dependent claim 9 for the reasons set forth under the 35 U.S.C. 112, second paragraph rejection, above), absent of unexpected results it is asserted that this is an optimizable parameter for a result-effective variable. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) In Tura and in accordance with the second interpretation of the

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patentees disclosure as it pertains to applicant's claimed reinforcement bands, the thickness of the plastic polymeric material directly effects the strength and rigidity of the sealed enclosure.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tura as applied to claims 1-3, 9-11 and 13-16 above, in view of Takayama et al. (U.S. Pat. 6,371,996 B1)

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tura as applied to claims 1-3, 9-11 and 13-16 above, in view of Gozdz et al. (U.S. Pat. 5,587,253)

The teachings of Tura are discussed above. The teachings of Tura when taken in view of Takayama et al. and Gozdz et al. will be discussed in parallel.

Regarding dependent claim 4, Tura does not explicitly teach the outer polymer as polyimide. However, Takayama et al. teaches polyimide as the material for a battery envelope film body. (col. 4 line 4-14)

Regarding dependent claim 5, Tura does not explicitly teach the outer polymer as polyester. However, Gozdz et al. teaches polyester as the material for a battery envelope film body. (col. 6 line 54 et seq.).

The skilled artisan would find obvious to employ either a polyimide or polyester material for the sealing material [70, 72] in Tura's invention in recognition of the humidity and moisture-proof properties these materials provide. (*ib*)

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tura as applied to claims 1-3, 9-11 and 13-16 above, in view of Kubota et al. (U.S. Pat. 5,654,114)

The teachings of Tura are discussed above.

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Tura does not explicitly teach the adhesive as a layer of silicone. However, Kubota et al. teaches silicone adhesives for battery applications. (col. 4 line 6-16) The skilled artisan would find obvious to employ a silicone adhesive in Tura's invention for reasons such as employing an adhesive that is stable in a lithium ion cell environment. (*ib*)

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tura as applied to claims 1-3, 9-11 and 13-16 above, in view of Moses et al. (U.S. Pat. 4,937,154)

Tura does not explicitly teach the adhesive as a layer of acrylate. However, Moses et al. teaches acrylate as an adhesive for a polyester film. (col. 4 line 19-25) The skilled artisan would find obvious to employ a silicone adhesive in Tura's invention for reasons such as simplifying manufacturing of the battery by holding adjoining parts in place. (*ib*)

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tura as applied to claims 1-3, 9-11 and 13-16 above, in view of either Kubota et al. or Moses et al.

Regarding dependent claim 8, as to the thickness of the adhesive layer, absent of unexpected results it is asserted that this is an optimizable parameter for a result-effective variable. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) The thickness of the adhesive directly effects the strength of the resulting bond.



***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Julian Mercado



Patrick Ryan  
Supervisory Patent Examiner  
Technology Center 1700